

A taxonomic study of the genus *Agathidium* (Coleoptera: Leiodidae) from Korea, Part I

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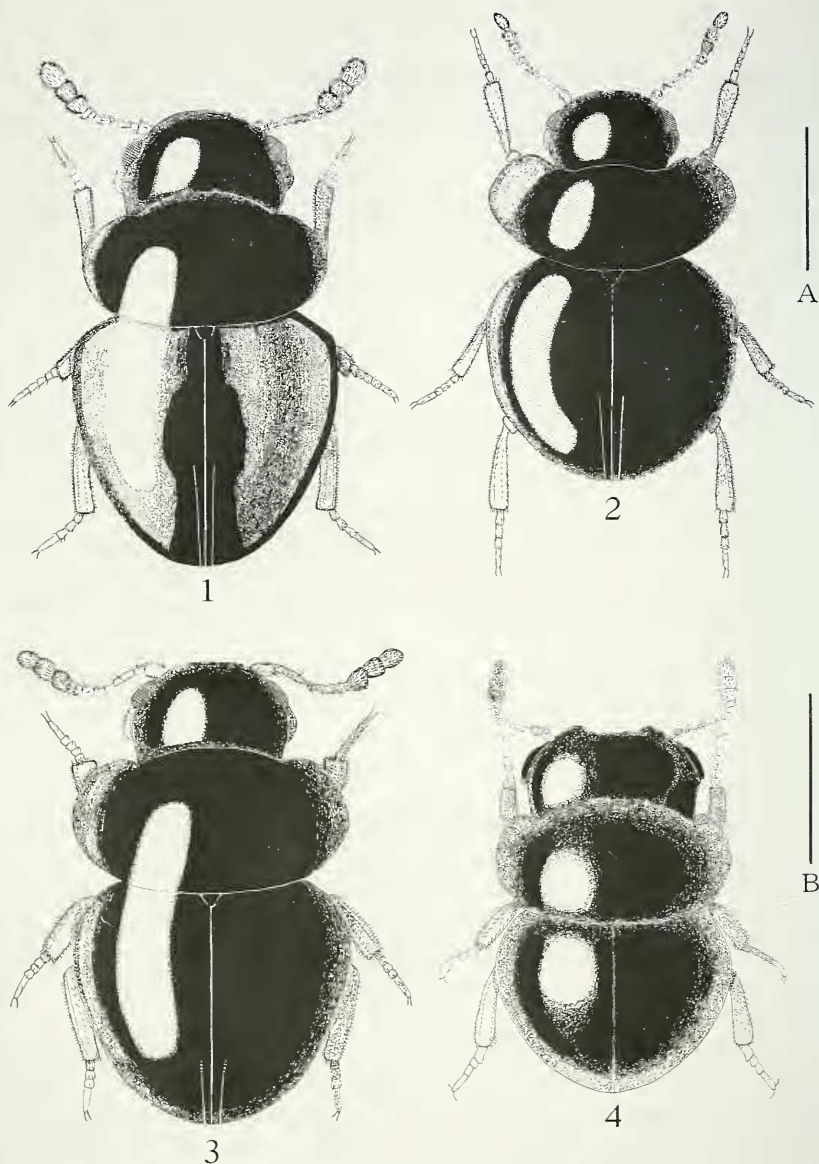
A taxonomic study of the genus *Agathidium* (Coleoptera: Leiodidae) from Korea, Part I. - A taxonomic study of the genus *Agathidium* from Korea is presented. Nine species including five new species (*Agathidium muryeongi* sp. n., *A. bockshini* sp. n., *A. leesunshini* sp. n., *A. odaesanense* sp. n., and *A. choi* sp. n.) are recognized, two of which are reported as new to Korea (*Agathidium cribratum* Portevin and *A. multitudum* Hoshina). A key for the Korean species of the two subgenera, *Cyphocele* and *Neocele*, of the genus *Agathidium* and illustrations of diagnostic features are provided.

Key-words: *Agathidium* - Leiodidae - Coleoptera - new species - new records - Korea.

INTRODUCTION

The genus *Agathidium* Panzer, 1797 belongs to the tribe Agathidiini of the family Leiodidae. The pioneer work on the Korean *Agathidium* was made by J. Hlisnikovsky, who described *Agathidium* (*Neocele*) *curticorne* from Pu-ry-ong (northern Korea) in 1964. Later, Angelini (1992) recorded *Agathidium mequignoni* Roubal, and described three new *Agathidium* species. Also, Angelini (1995) reported *Agathidium subcostatum* Portevin from Korea. As a result, six species of *Agathidium* have hitherto been known to occur in Korea.

In the course of our field works in 1998-2001, many beetles including *Agathidium* were collected from Korea by the flight intercept trap (FIT), the beating method, sifting litters, and so on. Our careful examinations revealed that these specimens contained five new species of the subgenus *Cyphocele* and *Neocele* of the genus *Agathidium* and two species newly recorded from Korea. Therefore, we revise here the subgenera *Cyphocele* and *Neocele* with descriptions of five new species under the names, *Agathidium* (*Cyphocele*) *muryeongi* sp. n., *A.* (*C.*) *bockshini* sp. n., *A.* (*Neocele*) *leesunshini* sp. n., *A.* (*N.*) *odaesanense* sp. n., and *A.* (*N.*) *choi* sp. n. in this paper (part I), and will treat other subgenera of the genus *Agathidium* in part II. The measurement method in the present paper was followed to Angelini & De Marzo (1981).



FIGS 1-4

Habitus, dorsal view. 1, *Agathidium* (*Cyphocele*) *muryeongi* sp. n.; 2, *A.* (*C.*) *subcostatum* Portevin; 3, *A.* (*C.*) *bockshini* sp. n.; 4, *A.* (*Neoceble*) *leesunshini* sp. n.. Scale A: 1 mm for Fig. 1 and 1.5 mm for Fig. 2. Scale B: 1 mm for Figs 3-4.

The holotypes and most of paratypes of five new species and all materials of known species described or revised in the present paper are deposited in Chungnam National University Insect Collection (CNUIC, Daejeon). Only two male paratypes of *Agathidium* (*Neoceble*) *choi* sp. n. are preserved in the collection of a senior author.

TAXONOMIC TREATMENT

KEY TO SPECIES OF THE SUBGENUS *CYPHOCEBLE* THOMSON, 1859 IN KOREA

See Angelini (1995) for a key to the subgenera of the genus *Agathidium*

- 1 Dorsum clearly bicolorous (Fig. 1); aedeagus relatively thick (Fig. 45)
..... *Agathidium (Cyphoceble) muryeongi* sp. n.
- Dorsum almost concolorous (Figs 2 & 3); aedeagus relatively slender
(Figs 46-47) 2
- 2 Body length 3.5-5.0 mm; dorsum punctate densely (Fig. 10); hind wings
present *A. (C.) subcostatum* Portevin
- Body length 2.8-2.9 mm; dorsum punctate very sparsely (Fig. 11); hind
wings absent *A. (C.) bockshini* sp. n.

Agathidium (Cyphoceble) muryeongi Hoshina & Park sp. n.

Figs 1, 9, 17, 22, 23, 30, 31, 37, 45, 53, 61

Type series. Holotype: ♂, Sangwonsa, Mt. Odaesan, Jinbu-myeon, Pyeongchang-gun, Gangwon Prov., 22. viii.-20. x. 2000, K.-J. Ahn leg. (FIT) (CNUIC). Paratypes: 1 ♂, 1 ♀, Chongmyolbongung, Mt. Odaesan, Jinbu-myeon, Pyeongchang-gun, Gangwon Prov., 7-9. x. 1999, U.-S. Hwnag & M.-S. Kim leg. (FIT); 1 ♀, Sangwonsa, Mt. Odaesan, Jinbu-myeon, Pyeongchang-gun, Gangwon Prov., 15. ix. 2001, S.-J. Park leg.; 1 ♀, Sangwonsa, Mt. Odaesan, Jinbu-myeon, Pyeongchang-gun, Gangwon Prov., 15. ix.-14. xi. 2001, K.-J. Ahn & C.-W. Shin leg. (FIT).

Distribution. Korea.

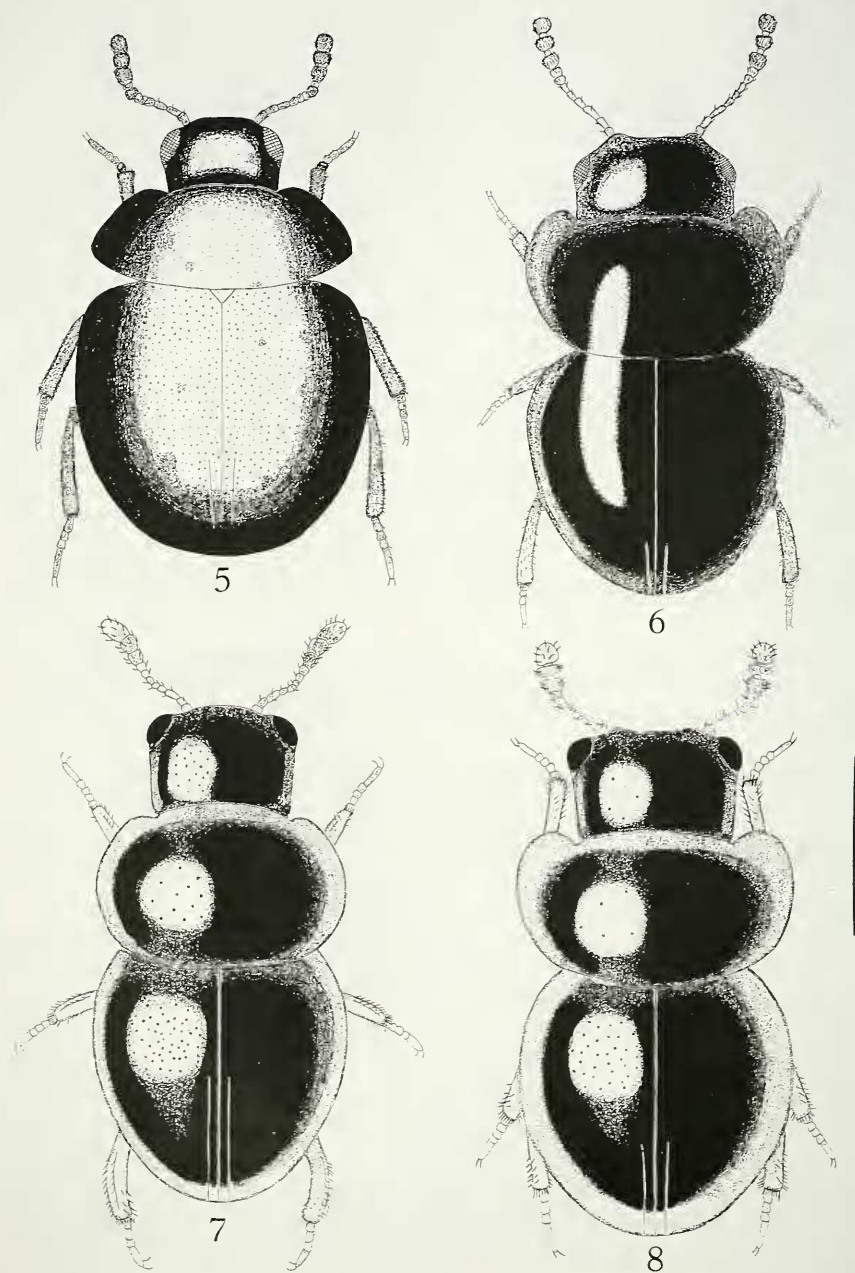
Description. Measurement of holotype. Body length: 3.4 mm. Pronotum: length 0.86 mm, width 1.8 mm, height 1.0 mm. Elytra: length 1.9 mm, width 1.9 mm, height 1.2 mm.

Coloration. Dorsum less shining, almost bicolorous; head black; pronotum black with reddish brown margins; elytra dark-orange with black stripes (Figs 1 & 17); mesosternum light brown; metasternum and venter dark brown; legs dark brown; antennomeres 1-8 reddish brown; 9-10 and basal two-fifths of 11 dark brown; apical two-fifths of 11 light brown.

Body about 1.8 times as long as wide (Fig. 1), convex in general (Fig. 17).

Head widest at tempora (Figs 22 & 23), about 1.5 times as wide as long, punctate minutely and densely (Fig. 9), microreticulate strongly; length and width of head about 0.79 times as long as and about 0.65 times as wide as those of pronotum, respectively (Fig. 1); eyes oval, located at about apical one-third of lateral margins; clypeal line shallow; male left mandible larger than right one (Figs 22 & 23), and sharply or moderately curved apically in lateral view (Figs 30 & 31); both mandibles of almost same size in female; antennomeres 1-4 and 11 longer than wide; the others wider than long (Fig. 37); antennomere 3 about 1.4 times as long as 2, and shorter than 4 plus 5; length and width of antennomere 9 about 2.3 times as long as and about 1.5 times as wide as those of 8, respectively; antennomere 9 a little longer than 10; antennomere 11 oval.

Pronotum widest at about basal two-fifths of lateral margins (Fig. 1), about 1.9 times as wide as long, punctate and microreticulate as head (Fig. 9); length and width about 0.46 times as long as and slightly narrower than those of elytra, respectively (Fig. 1).



FIGS 5-8

Habitus, dorsal view. 5. *Agathidium* (*Neoceble*) *cribratum* Portevin; 6, *A. (N.) odaesanense* sp. n.; 7, *A. (N.) curticorne* Hlisenkovsky; 8, *A. (N.) choi* sp. n.. Scale: 1 mm for Figs 5-8.

Elytra widest at about basal one-seventh of lateral margins, almost as wide as long (Fig. 1), punctate more sparsely than head and pronotum (Fig. 9), not microreticulate; sutural stria distinct, and present at about apical three-eighths of elytra.

Mesosternum with a complete lateral line and a thin median carina; metasternum without femoral lines.

Tarsal formula 5-5-4 in male, 5-4-4 in female.

Hind wings normal.

Male. Aedeagus (Figs 45 & 53) thick and short in general; the median lobe curved sharply at middle in lateral view; parameres curved as the median lobe in lateral view, straight at sides, and bluntly pointed apically in ventral view.

Female. Spermatheca curved sharply at two points in general (Fig. 61).

Body length 3.2-3.4 mm.

Remarks. *A. (C.) muryeongi* sp. n. can be distinguished from the other Korean *Cyphocele* species by having a bicolourous dorsum (Fig. 1). This new species is similar to *A. (C.) besucheti* Hlissnikovsky, 1972, in appearance, but is distinguished from the latter by having a dorsum less shining, and head and pronotum microreticulate strongly, in compare with *A. (C.) besucheti* that has a shining dorsum, and head and pronotum not microreticulate. Moreover, *A. (C.) muryeongi* sp. n. is also similar to *A. (C.) annulatum* Hisamatsu, 1957, but the elytra have black stripes on the elytral suture and along the lateral margins (Fig. 1). In contrast, *A. (C.) annulatum* has the elytra with two black patches separated from the elytral suture.

Etymology. The specific name is derived from Mu ryeong Wang (462-523), a great king of ancient Korean Kingdom, Baek Jae.

Agathidium (Cyphocele) subcostatum Portevin, 1905

Figs 2, 10, 38, 46, 54, 62

Agathidium subcostatum Portevin, 1905: 420 (Japan: Honshu).

Agathidium (Cyphocele) subcostatum: Hatch, 1929: 80; Hoshina & Maruyama, 2001: 157.

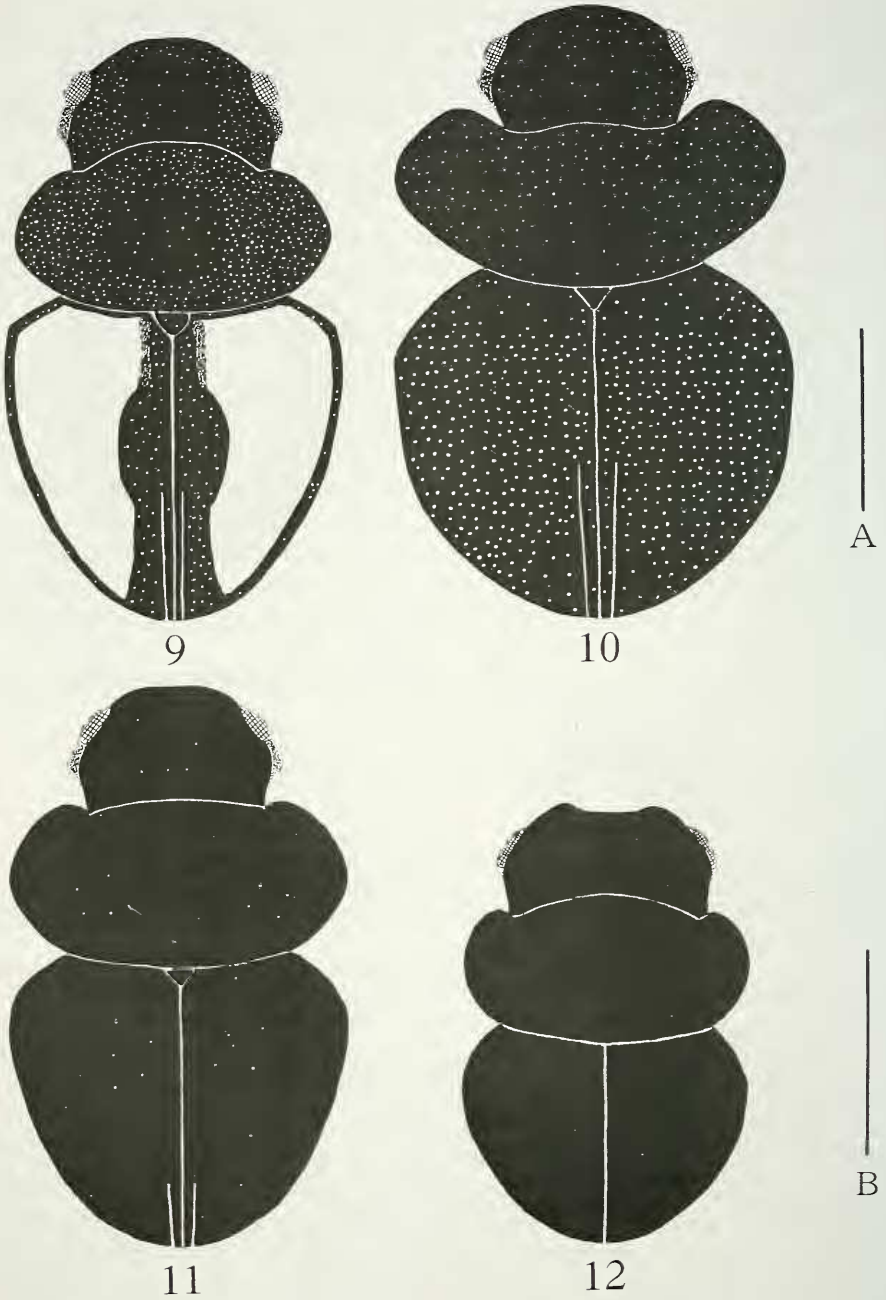
See Angelini (1995), Hoshina (1999a), and Hoshina & Maruyama (2001) for other synonymy and references.

Specimens examined. 1 ♂, 1 ♀, Sangwonsa, Mt. Odaesan, Jinbu-myeon, Pyeongchang-gun, Gangwon Prov., 21. iv.-18. v. 2002, S.-J. Park & C.-W. Shin leg. (FIT).

Distribution. Korea and Japan.

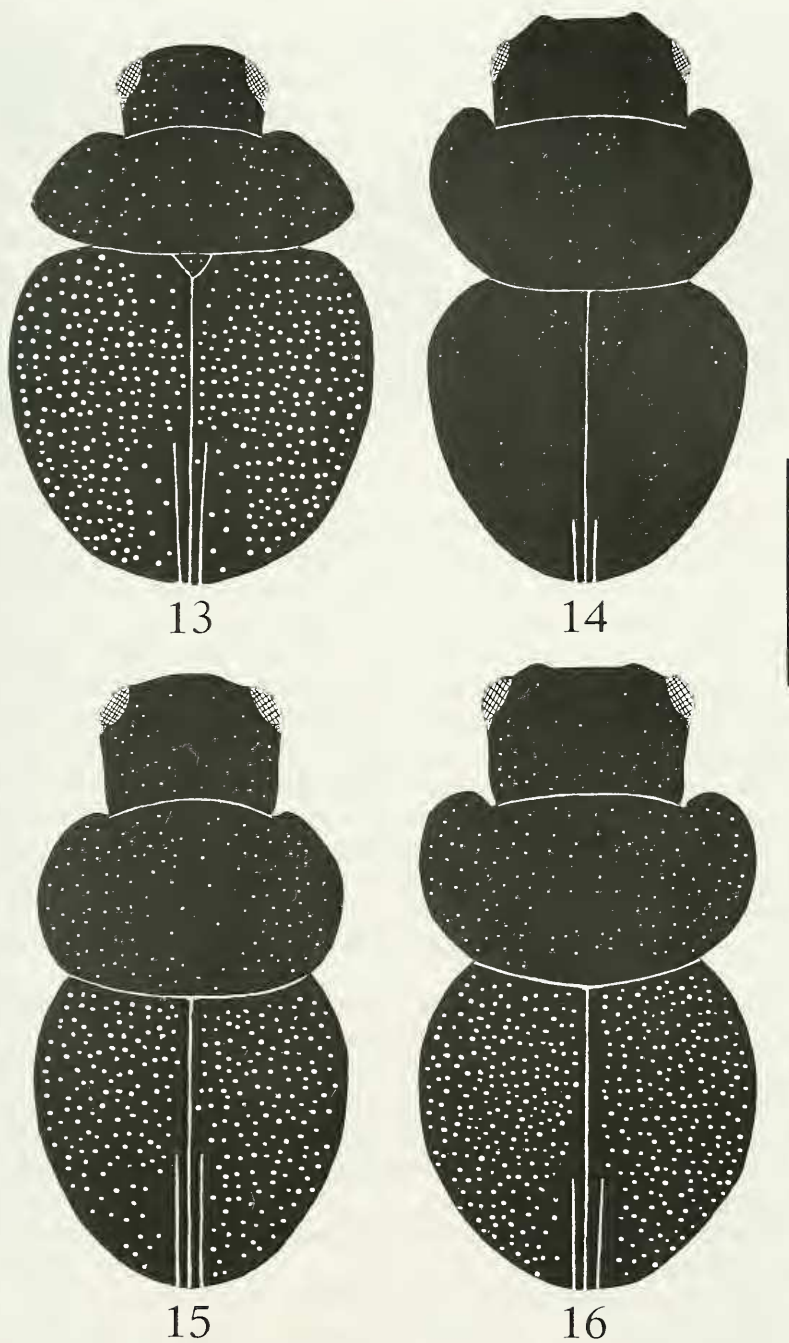
Diagnosis. Coloration. Dorsum brown to dark brown and almost concolorous; antennomeres 1-6 and 11 brown, the others dark brown; legs dark brown.

Body about 1.5 times as long as wide (Fig. 2); head widest at tempora, and microreticulate; punctures of head minutely and densely (Fig. 10); clypeal line shallow; left mandibles almost as large as or a little larger than right in both sexes; antennomeres 3 about 2.3 times as long as 2 (Fig. 38); antennomere 11 slender; pronotum microreticulate as head; punctures of pronotum as those of head (Fig. 10); elytra not microreticulate; punctures of elytra stronger and denser than those of head and pronotum (Fig. 10); sutural stria distinct and its length varying among specimens, about from one-third to the half of length of elytra; hind wings normal; tarsal formula 5-5-4 in male, 4-4-4 in female; aedeagus as shown in Figs 46 & 54; spermatheca as shown in Fig. 62.



FIGS 9-12

Punctures of dorsum. 9, *Agathidium* (*Cyphocele*) *muryeonggi* sp. n.; 10, *A. (C.) subcostatum* Portevin; 11, *A. (C.) bockshini* sp. n.; 12, *A. (Neocele) leesunshini* sp. n.. Scale A: 1 mm for Fig. 9 and 1.2 mm for Fig. 10. Scale B: 1 mm for Figs 11-12.



FIGS 13-16

Punctures of dorsum. 13, *Agathidium* (*Neoceble*) *cribratum* Portevin; 14, *A.* (*N.*) *odaesanense* sp. n.; 15, *A.* (*N.*) *curticorne* Hlissnikovsky; 16, *A.* (*N.*) *choi* sp. n.. Scale: 1 mm for Figs 13-16.

Body length: 3.5-5.0 mm.

Remarks. *Agathidium (Cyphocele) subcostatum* Portevin has been known to be distributed in Korea (Angelini, 1995). We succeeded in recording this species again in the present study. This species can be distinguished easily from *A. (C.) bockshini* sp. n. by having dense punctures on dorsum (Fig. 10) and normal hind wings.

***Agathidium (Cyphocele) bockshini* Hoshina & Park sp. n.**

Figs 3, 11, 18, 24, 39, 47, 55, 63

Type series. Holotype: ♂, Sangwonsa, Mt. Odaesan, Jinbu-myeon, Pyeongchang-gun, Gangwon Prov., 15. ix. 2001, S.-J. Park & C.-W. Shin leg. by sifting the litter layers (CNUIC). Paratypes: 1 ♂, 2 ♀, same data as holotype; 1 ♀, Sangwonsa, Mt. Odaesan, Jinbu-myeon, Pyeongchang-gun, Gangwon Prov., 4. iv. 2001, S.-J. Park leg. (by sifting the litter layers).

Distribution. Korea.

Description. Measurement of holotype. Body length: 2.8 mm. Pronotum: length 0.82 mm, width 1.7 mm, height 0.90 mm. Elytra: length 1.6 mm, width 1.7 mm, height 1.0 mm.

Coloration. Dorsum shining, almost concolorous, reddish brown; pronotum with light brown margins; mesosternum and venter reddish brown; metasternum reddish brown or dark brown; legs brown; antennomere 1 brown or reddish brown; 2-8 and 11 light brown; 9-10 brown.

Body about 1.7 times as long as wide (Fig. 3), less convex in general (Fig. 18).

Head widest at tempora (Fig. 24), about 1.7 times as wide as long, punctate minutely and very sparsely (Fig. 11), microreticulate weakly; length and width of head about 0.74 times as long as and about 0.64 times as wide as those of pronotum, respectively (Fig. 3); eyes a little slender, located at about apical one-third of lateral margins; clypeal line indistinct; both mandibles almost of the same size in both sexes; antennomeres 1-5 and 11 longer than wide; the others wider than long (Fig. 39); antennomere 3 about 2.0 times as long as 2, and longer than 4 plus 5; length and width of antennomere 9 segment about 2.4 times as long as and about 1.2 times as wide as those of 8, respectively; antennomere 9 almost as large as 10; antennomere 11 segment slender.

Pronotum widest at about basal one-third of lateral margins (Fig. 3), about 2.0 times as wide as long, punctate and microreticulate as head (Fig. 11); length and width about 0.58 times as long as and almost as wide as those of elytra, respectively (Fig. 3).

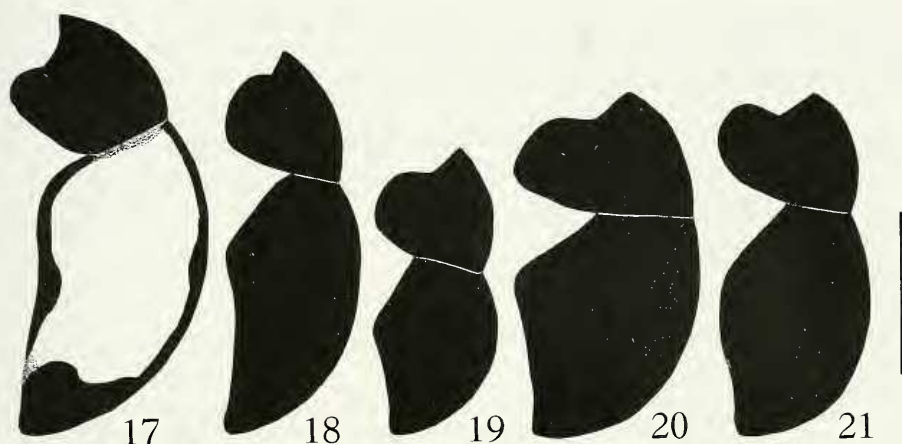
Elytra widest at about basal one-sixth of lateral margins, about 1.2 times as long as wide (Fig. 3), punctate and microreticulate as head and pronotum; sutural stria shallow and its length varying among specimens, about from one-fourth to three-eighths of length of elytra.

Mesosternum with complete lateral line and without median carinae; metasternum without femoral lines.

Tarsal formula 5-5-4 in male, 4-4-4 in female.

Hind wings absent.

Male. Aedeagus (Figs 47 & 55) slender in general; the median lobe curved spirally near the base in lateral view; parameres curved in an arc, shorter than the median lobe in lateral view, straight at sides, and bluntly pointed apically in ventral view.



FIGS 17-21

Bodies, lateral view. 17, *Agathidium (Cyphocele) muryeongi* sp. n.; 18, *A. (C.) bockshini* sp. n.; 19, *A. (Neoceleble) leesunshini* sp. n.; 20, *A. (N.) odaesanense* sp. n.; 21, *A. (N.) choi* sp. n.. Scale: 1 mm for Figs 17-21.

Female. Spermatheca slender and curved weakly (Fig. 63).

Body length 2.8-2.9 mm.

Remarks. The present new species is related to Japanese two flightless species described by Hoshina (1999b), *A. (C.) hayashii* and *A. (C.) yoshidai*, but the dorsum color is reddish brown and the median lobe of the aedeagus is curved spirally near the base in lateral view (Fig. 47), whereas in *A. (C.) hayashii*, the dorsum color is light brown to brown and the median lobe is almost straight near the base. Moreover, *A. (C.) bockshini* has no hind wings, in comparison with *A. (C.) yoshidai* that has hind wings which are vestigial and about one-fifth of length of elytra.

Etymology. The specific name is dedicated to a great general of the ancient Korean kingdom Baek Jae, Gwee-Sil Bock-Shin (?-663).

KEY TO SPECIES OF THE SUBGENUS *NEOCEBLE* GOZIS, 1886 IN KOREA

- 1 Elytra without sutural stria (Fig. 4); hind wings absent
..... *Agathidium (Neoceleble) leesunshini* sp. n.
- Elytra with sutural stria (Figs 5-8); hind wings present 2
- 2 Head and pronotum microreticulate 3
- Head and pronotum not microreticulate 4
- 3 Dorsum punctate densely (Fig. 13); antennomere 7 larger than 8 (Fig. 41); clypeal line distinct; elytra a little wider than pronotum (Fig. 5)
..... *A. (N.) cribratum* Portevin
- Dorsum punctate sparsely (Fig. 14); antennomere 7 almost as large as 8 (Fig. 42); clypeal line indistinct; elytra almost as wide as pronotum (Fig. 6) *A. (N.) odaesanense* sp. n.
- 4 Male left mandible sometimes with a long horn extending to the lateral side; antennomere 3 about 1.8 times as long as 2 . *A. (N.) multitodum* Hoshina

- Antennomere 3 about 1.5 times or less as long as 2 (Figs. 43-44) 5
- 5 Antennomere 3 about 1.5 times as long as 2; 11 relatively slender (Fig. 43); aedeagus of male relatively sharply curved in lateral view (Fig. 51) *A. (N.) curticorne* Hlisnikovsky
- Antennomere 3 about 1.2 times as long as second; 11 segment relatively robust (Fig. 44); aedeagus of male relatively weakly curved in lateral view. (Fig. 52) *A. (N.) choi* sp. n.

CANARIENSE GROUP

Agathidium (Neoceble) leesunshini Hoshina & Park sp. n.

Figs 4, 12, 19, 25, 32, 40, 48, 56

Type series. Holotype: ♂, Mt. Odaesan, Pyeongchang-gun, Gangwon Prov., 7-9. vii. 1998, K.-J. Ahn leg. (CNUIC). Paratype: 1 ♂, Mt. Odaesan, Pyeongchang-gun, Gangwon Prov., 21. iv. 2002, S.-J. Park leg.

Distribution. Korea.

Description. Measurement of holotype: Body length 2.2 mm. Pronotum: length 0.80 mm, width 1.3 mm, height 0.64 mm. Elytra: length 1.2 mm, width 1.3 mm, height 0.70 mm.

Coloration. Dorsum shining, almost concolorous, brown in general; meso-metasterna and venter a little lighter in color than dorsum; legs brown with tarsi a little lighter in color than in other parts of legs; antennomeres 1-8 light brown, 9-10 and basal half of 11 brown, apical half of 11 light brown to brown.

Body about 1.7 times as long as wide (Fig. 4), convex in general (Fig. 19).

Head widest at eyes and tempora (Fig. 25), about 1.7 times as wide as long, almost impunctate (Fig. 12), not microreticulate; length and width of head about 0.77 times as long as and about 0.76 times as wide as those of pronotum, respectively (Fig. 4); eyes slender, located at about apical two-fifths of lateral margins; clypeal line indistinct; left mandible of holotype clearly larger than right one and with a tip curved sharply and posteriorly (Figs 25 & 32); left mandible of paratype a little larger than right, and simply curved apically; antennomeres 1-5 and 11 longer than wide; the others wider than long (Fig. 40); antennomere 3 about 1.5 times as long as 2, and almost as long as 4 plus 5; length and width of antennomere 9 about 2.0 times as long as and about 1.9 times as wide as those of 8, respectively; antennomere 9 almost as large as 10; antennomere 11 oval.

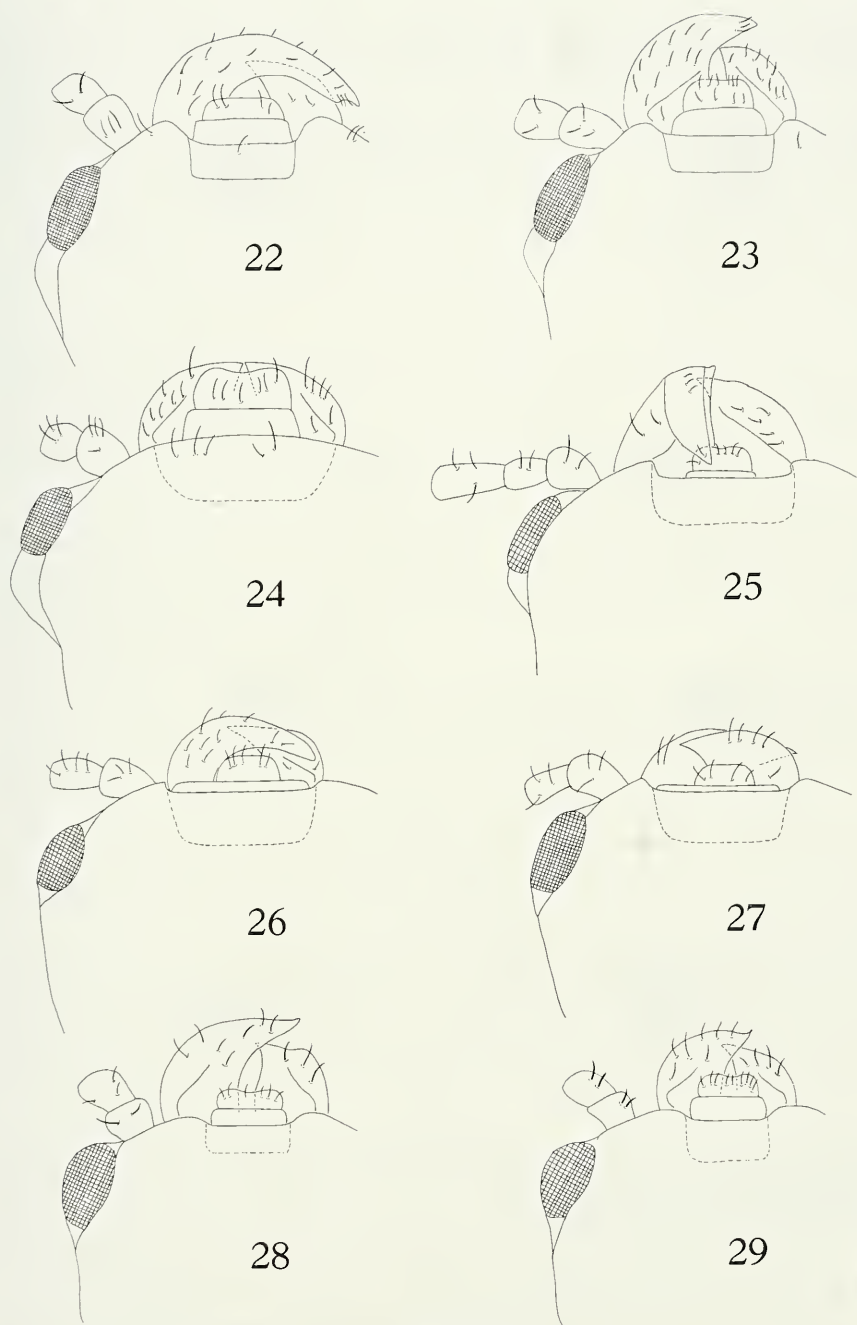
Pronotum widest at about middle of lateral margins, about 1.6 times as wide as long, almost impunctate (Fig. 12), not microreticulate; length and width of pronotum about 0.67 times as long as and almost as wide as those of elytra, respectively (Fig. 4).

Elytra widest at about basal one-third of lateral margins, almost 1.1 times as wide as long (Fig. 4), almost impunctate (Fig. 12), not microreticulate; sutural stria absent.

Mesosternum with a incomplete lateral line and a distinct median carina; metasternum without femoral lines.

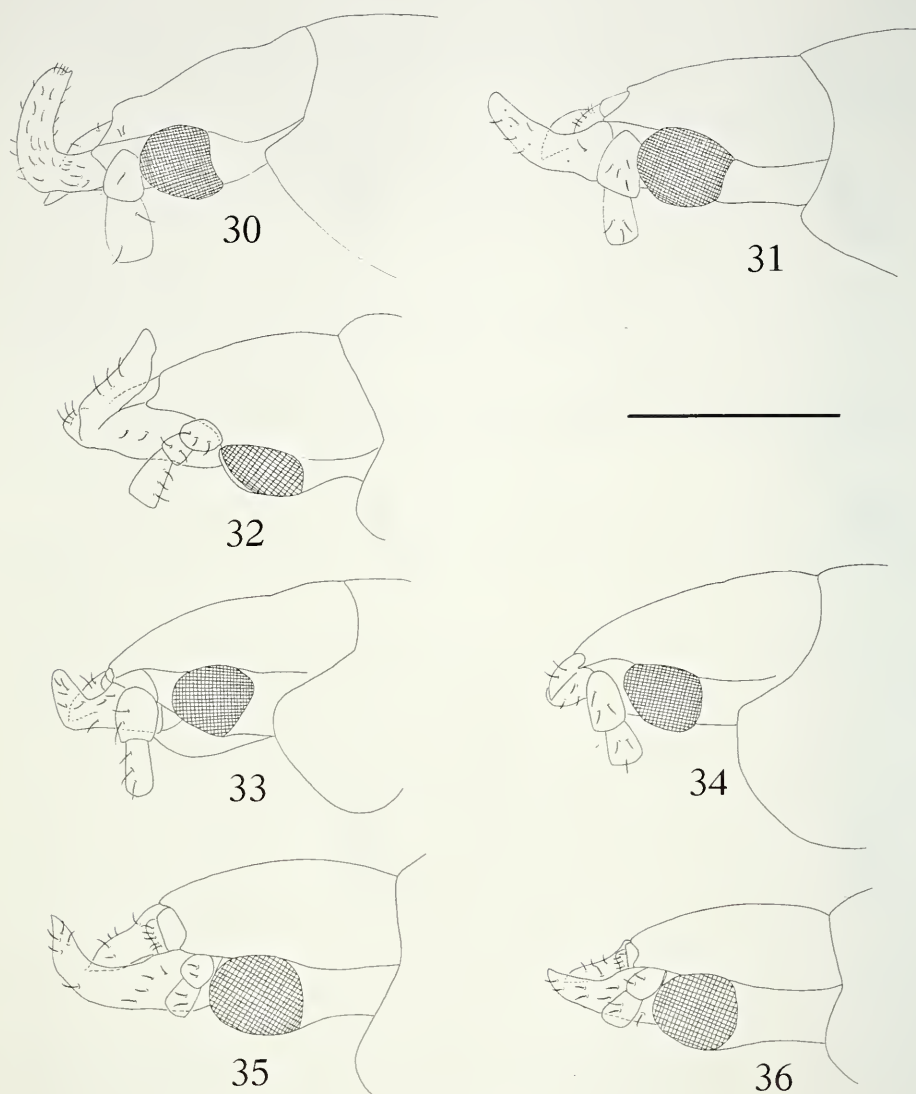
Tarsal formula 5-5-4 in male, unknown in female.

Hind wings absent.



FIGS 22-29

Male heads, dorsal view. 22-23, *Agathidium* (*Cyphoceble*) *muryeongi* sp. n.; 24, *A.* (*C.*) *bockshini* sp. n.; 25, *A.* (*Neoceble*) *leesunshini* sp. n.; 26-27, *A.* (*N.*) *odaesanense* sp. n.; 28-29, *A.* (*N.*) *choi* sp. n. Scale: 0.7 mm for Figs 22-23 and 0.5 mm for Figs 24-29.



FIGS 30-36

Male heads, lateral view. 30-31, *Agathidium (Cyphocele) muryeongii* sp. n.; 32, *A. (Neoceleble) leesunshini* sp. n.; 33-34, *A. (N.) odaesanense* sp. n.; 35-36, *A. (N.) choi* sp. n.. Scale: 0.7 mm for Figs 30-31 and 0.5 mm for Figs 32-36.

Male. Aedeagus (Figs 48 & 56) thick in general; the median lobe curved sharply at middle in lateral view, protuberant apically in ventral view; parameres slender, shorter than the median lobe, curved in an arc, round apically in lateral view, straight at sides, curved inwardly and expanded near apex in ventral view.

Female. Unknown.

Body length 2.0-2.2 mm.

Remarks. *Agathidium (Neoceble) leesunshini* sp. n. can be distinguished easily from other five Korean species of the subgenus *Neoceble* by having the dorsum almost impunctate and no hind wings. Moreover, this new species is similar to *A. (N.) omogoense* Angelini et De Marzo, 1990, but the apex of the median lobe of aedeagus is protuberant in ventral view (Fig. 56). In contrast, *A. (N.) omogoense* has the median lobe of aedeagus with almost straight apical margin.

Etymology. The specific name is derived from a Korean national hero, admiral Lee Sun-Shin (1545-1598).

VARIANS GROUP

Agathidium (Neoceble) cribratum Portevin, 1905

Figs 5, 13, 41, 49, 57, 64

Agathidium cribratum Portevin, 1905: 419 (Japan: Honshu).

Agathidium (Neoceble) cribratum: Portevin, 1914: 229; Hoshina, 2000: 78.

See Angelini (1995) and Hoshina (2000) for other synonymy and references.

Specimens examined. 1 ♂, Sangwonsa, Mt. Odaesan, Jinbu-myeon, Pyeongchang-gun, Gangwon Prov., 4. vi-22. vi. 2001, K.-J. Ahn *et al.* leg. (FIT); 1 ♀ Sangwonsa, Mt. Odaesan, Jinbu-myeon, Pyeongchang-gun, Gangwon Prov., 30. iv.-4. vi. 2001, K.-J. Ahn *et al.* leg. (FIT); 1 ♀, Sangwonsa, Mt. Odaesan, Jinbu-myeon, Pyeongchang-gun, Gangwon Prov., 4. vi 2001, S.-J. Park leg. (by sifting the litter layers).

Distribution. Korea and Japan.

Diagnosis. Coloration. Dorsum almost concolorous, usually black, rarely brown; pronotum with reddish brown margins; antennomeres 1-6 light brown; antennomeres 7, 9-10 and basal two-fifths of 11 black; 8 dark brown; apical three-fifths of 11 brown.

Body about 1.6 times as long as wide (Fig. 5). Head widest at eyes, and microreticulate strongly or weakly; punctures of head minutely and densely (Fig. 13); clypeal line deep and distinct; both mandibles of almost same size in both sexes; antennomere 3 about 1.3 times as long as 2 (Fig. 41); antennomere 7 much larger than 8; antennomere 11 oval; pronotum a little narrower than elytra (Fig. 5), and microreticulate as head; punctures of pronotum as those of head (Fig. 13); elytra not microreticulate; punctures of elytra denser and larger than those of head and pronotum (Fig. 13); sutural stria distinct and its length varying among specimens, about from one-third to two-fifths of length of elytra; hind wings normal; tarsal formula 5-5-4 in male, 5-4-4 in female; aedeagus as shown in Figs 49 & 57; spermatheca as shown in Fig. 64.

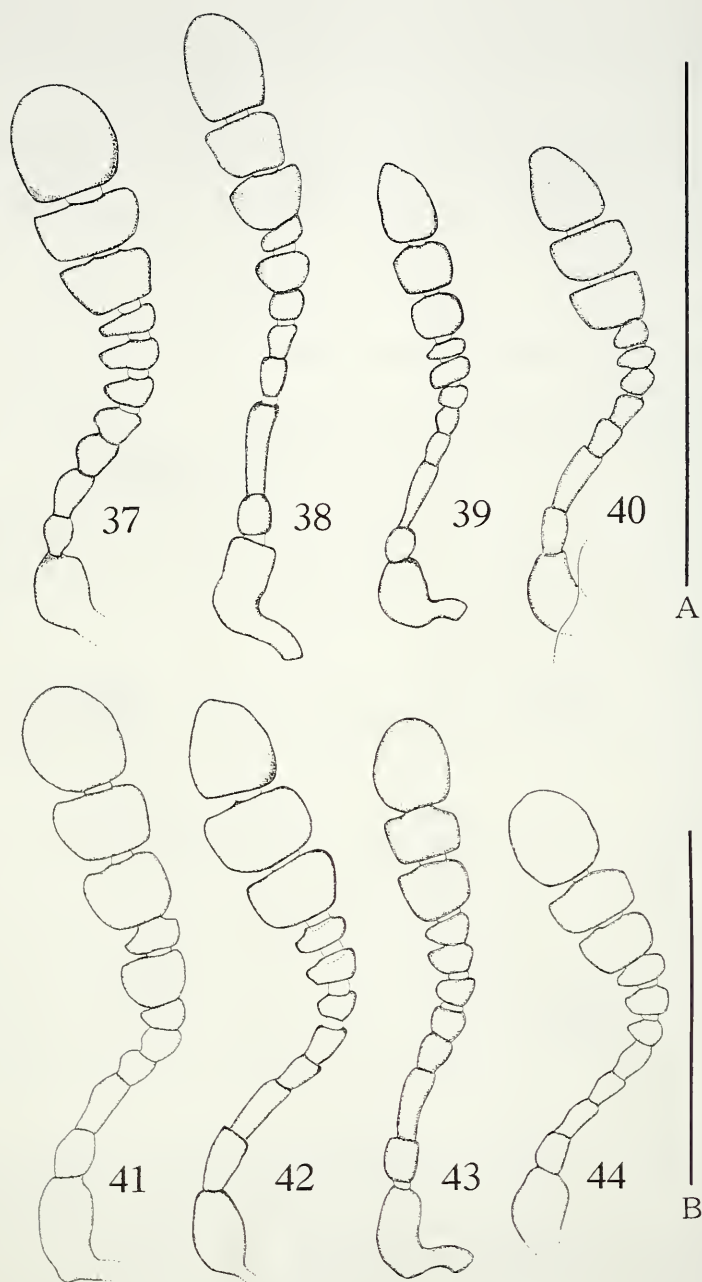
Body length 2.4-3.4 mm.

Remarks. This species was collected for the first time from Korea, being previously known from only Japan. It can be distinguished easily from the other four Korean species of *Neoceble* by having the elytra a little wider than pronotum (Fig. 5) and the antennae with antennomere 7 clearly larger than 8 (Fig. 41).

Agathidium (Neoceble) odaesanense Hoshina & Park sp. n.

Figs 6, 14, 20, 26, 27, 33, 34, 42, 50, 58, 65

Type series. Holotype: ♂, Sangwonsa, Mt. Odaesan, Jinbu-myeon, Pyeongchang-gun, Gangwon Prov., 22. vii. 2000, M.-H. Kim leg. by the beating (CNUIC). Paratype: 1 ♂, same data



FIGS 37-44

Antennae. 37, *Agathidium* (*Cyphocele*) *muryeongii* sp. n.; 38, *A. (C.) subcostatum* Portevin; 39, *A. (C.) bockshini* sp. n.; 40, *A. (Neocele)* *leesuunshuii* sp. n.; 41, *A. (N.) cribratum* Portevin; 42, *A. (N.) odaesanense* sp. n.; 43, *A. (N.) curticornis* Hlissnikovsky; 44, *A. (N.) choi* sp. n.. Scale A: 1 mm for Figs 37 & 39 and 1.2 mm for Fig. 38. Scale B: 0.5 mm for Figs 40-44.

as holotype: 1 ♀, Unduryeong, Kyebangsang, Nae-myeon, Hongcheon-gun, Gangwon Prov., 24. viii. 2000, M.-H. Kim leg. (by the beating); 1 ♀, Sangwonsa, Mt. Odaesan, Jinbu-myeon, Pyeongchang-gun, Gangwon Prov., 16. viii.-15. ix. 2001, S.-J. Park & C.-W. Shin leg. (FIT).

Distribution. Korea.

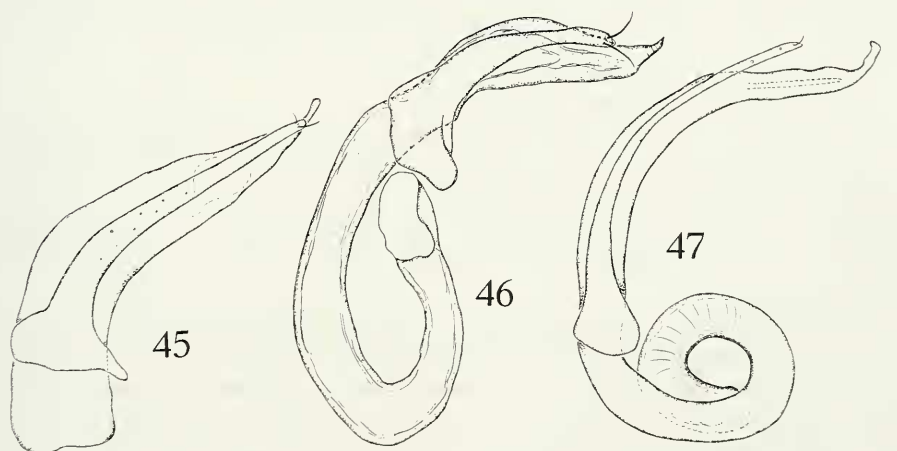
Description. Measurement of holotype. Body length: 2.6 mm. Pronotum: length 0.84 mm, width 1.5 mm, height 0.92 mm. Elytra: length 1.5 mm, width 1.5 mm, height 0.96 mm.

Coloration. Dorsum shining, almost concolorous, dark brown; pronotum with reddish brown margins; mesosternum and venter brown; metasternum dark brown; legs brown; antennomeres 1-8 and 11 brown; 9-10 dark brown; basal two-fifths of 11 darker than 1-8.

Body about 1.7 times as long as wide (Fig. 6), convex in general (Fig. 20).

Head widest at eyes (Figs 26 & 27), about 1.7 times as wide as long, punctate minutely and sparsely (Fig. 14), microreticulate very weakly; length and width of head about 0.66 times as long as and about 0.61 times as wide as those of pronotum, respectively (Fig. 6); eyes oval, located at about apical two-fifths of lateral margins; clypeal line indistinct; male left mandible larger than or almost as large as right one (Figs 26 & 27), and sharply curved apically or straight in lateral view (Figs 33 & 34); both mandibles almost of the same size in female; antennomeres 1-5 and 11 longer than wide; the others wider than long (Fig. 42); antennomere 3 about 1.2 times as long as 2, and almost as long as 4 plus 5; length and width of antennomere 9 about 2.4 times as long as and about 1.7 times as wide as those of 8, respectively; antennomere 9 as large as 10; antennomere 11 oval.

Pronotum widest at about apical two-fifths of lateral margins, about 1.8 times as wide as long, punctate and microreticulate as head (Fig. 14); length and width about 0.55 times as long as and almost as wide as those of elytra, respectively (Fig. 6).



FIGS 45-47

Aedeagi, lateral view. 45, *Agathidium* (*Cyphoceble*) *muryeonggi* sp. n.; 46, *A. (C.) subcostatum* Portevin; 47, *A. (C.) bockshini* sp. n.. Scale: 0.7 mm for Fig. 45 and 1 mm for Figs 46-47.

Elytra widest at about basal one-fourth of lateral margins, almost as wide as long (Fig. 6), punctate as head and pronotum (Fig. 14), not microreticulate; sutural stria shallow, and present at about apical two-ninths of elytra.

Mesosternum with a complete lateral line and without median carinae; metasternum without femoral lines.

Tarsal formula 5-5-4 in male, 4-4-4 in female.

Hind wings normal.

Male. Aedeagus (Figs 50 & 58) slender in general; the median lobe curved feebly at about basal one-third, pointed sharply at the apex in lateral view, triangular simply along apical margins in ventral view; parameres curved as the median lobe in lateral view, straight at sides, and bluntly pointed apically in ventral view.

Female. Spermatheca bent simply at one point (Fig. 65).

Body length 2.5-2.8 mm.

Remarks. The present species is similar to *Agathidium (Neoceble) varians* Beck, 1817 in appearance, but is separated by having the dorsum almost concolorous, in compare with *A. (N.) varians* that has the bicolourous dorsum. Moreover, *A. (N.) odaesanense* sp. n. is also similar to *A. (N.) aeneum* Angelini & De Marzo, 1990, but is distinguished by having the dorsum very sparsely punctate. In contrast, *A. (N.) aeneum* has the dorsum densely and minutely punctate.

Etymology. The specific name is derived from the type locality, Mt. Odaesan.

NIGRIPENNE GROUP

Agathidium (Neoceble) multitodum Hoshina, 2000

Agathidium (Neoceble) multitodum Hoshina, 2000: 71 (Japan: Kyushu).

Specimens examined. [Japanese specimens] Holotype, ♂, Mt. Kurodake, Oita Pref., Kyushu, 19. vi. 1996, H. Hoshina leg. (preserved in the collection of Kyushu University, Fukuoka) [Korean specimens] 2 ♂, 1 ♀, Mt. Baekamsan, Waya-ri, Naechon-myeon, Hongcheon, Gangwon Prov., 25. v. -21. vi. 2002, K.-J. Ahn *et al.* leg. (FIT).

Distribution. Korea and Japan.

Diagnosis. See Hoshina (2000).

Remarks. This species was collected for the first time from Korea, and can be distinguished easily from the other five Korean species of *Neoceble* by sometimes having a long horn on the male left mandibles.

Agathidium (Neoceble) curticorne Hlisnikovsky, 1964

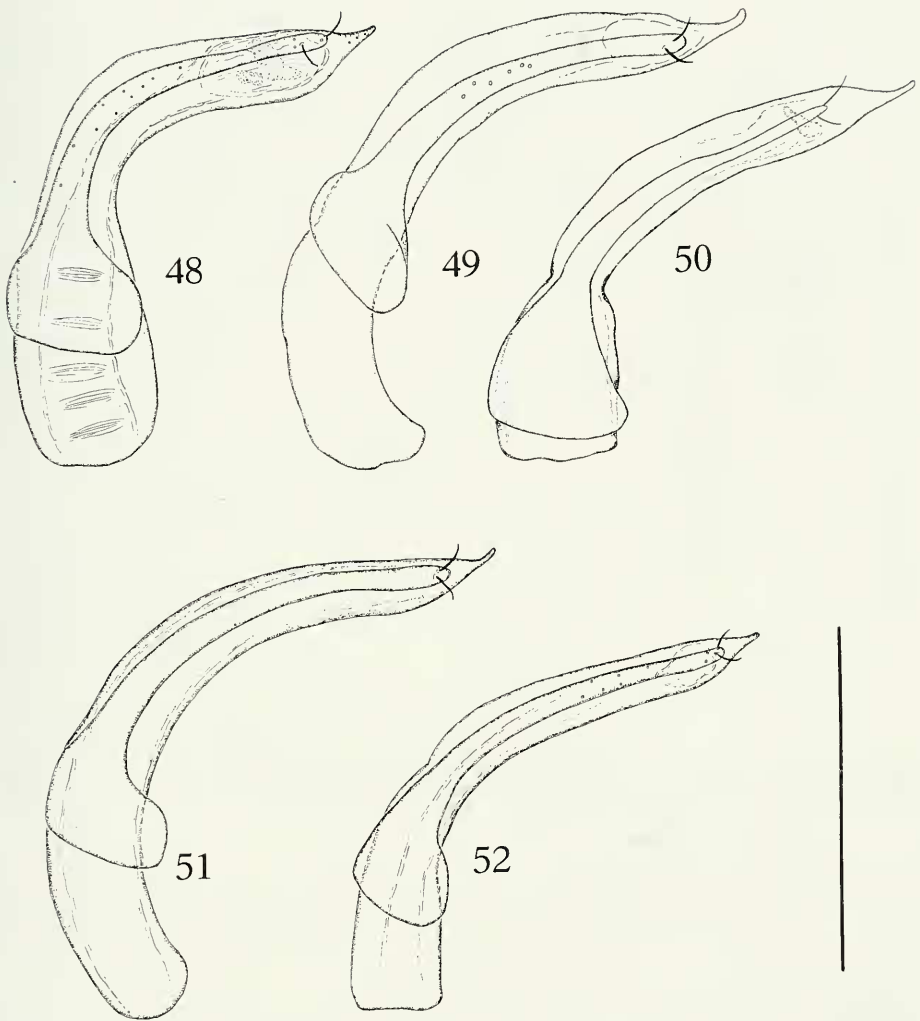
Figs 7, 15, 43, 51, 59

Agathidium (Neoceble) curticorne Hlisnikovsky, 1964: 49 (Korea); Lafer, 1989: 327; Angelini, 1992: 431; Angelini, 1995: 141.

Specimens examined. Holotype, ♂, Pu-ry-ong, Korea (preserved in the Natural History Museum, Prague).

Distribution. Korea.

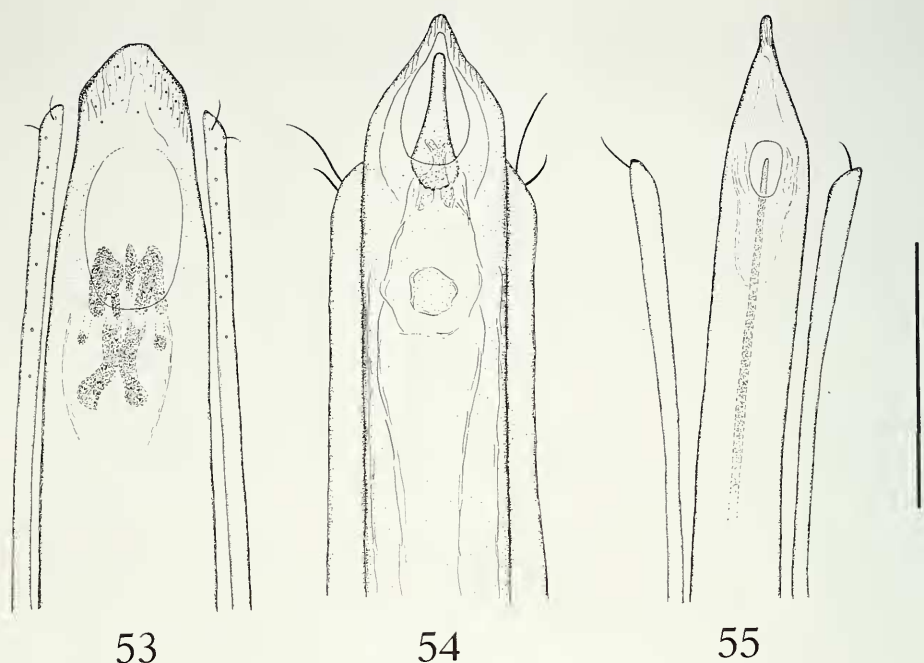
Diagnosis. Coloration. Dorsum almost concolorous, brown to reddish brown in general; antennomeres 1-8 reddish brown; 9-10 brown, basal two-fifths of 11 light brown to brown; apical three-fifths of 11 light brown; legs reddish brown.



FIGS 48-52

Aedeagi, lateral view. 48, *Agathidium (Neocele) leesunshini* sp. n.; 49, *A. (N.) cribratum* Portevin; 50, *A. (N.) odaesanense* sp. n.; 51, *A. (N.) curticornis* Hlisenkovsky; 52, *A. (N.) choi* sp. n.. Scale: 0.5 mm for Figs 48-52.

Body about 1.9 times as long as wide (Fig. 7); head widest at eyes, punctate minutely (Fig. 15), not microreticulate; clypeal line shallow; both mandibles almost of the same size; antennomere 3 about 1.5 times as long as 2 (Fig. 43); antennomere 11 a little slender; pronotum not microreticulate; punctures of pronotum as those of head (Fig. 15); elytra not microreticulate; punctures of elytra stronger and denser than those of head and pronotum (Fig. 15); sutural stria distinct and present at about apical five-twelfths of elytra; hind wings normal; tarsal formula 5-5-4 in male, unknown in female; aedeagus as shown in Figs 51 & 59.



FIGS 53-55

Aedeagi, ventral view. 53, *Agathidium* (*Cyphocele*) *muryeongi* sp. n.; 54, *A. (C.) subcostatum* Portevin; 55, *A. (C.) bockshini* sp. n.. Scale: 0.25 mm for Figs 53-55.

Body length: 2.6 mm.

Remarks. This species was described by Hlisnikovsky (1964) and no specimens have been collected since then.

***Agathidium* (*Neoceble*) *choi* Hoshina & Park sp. n.**

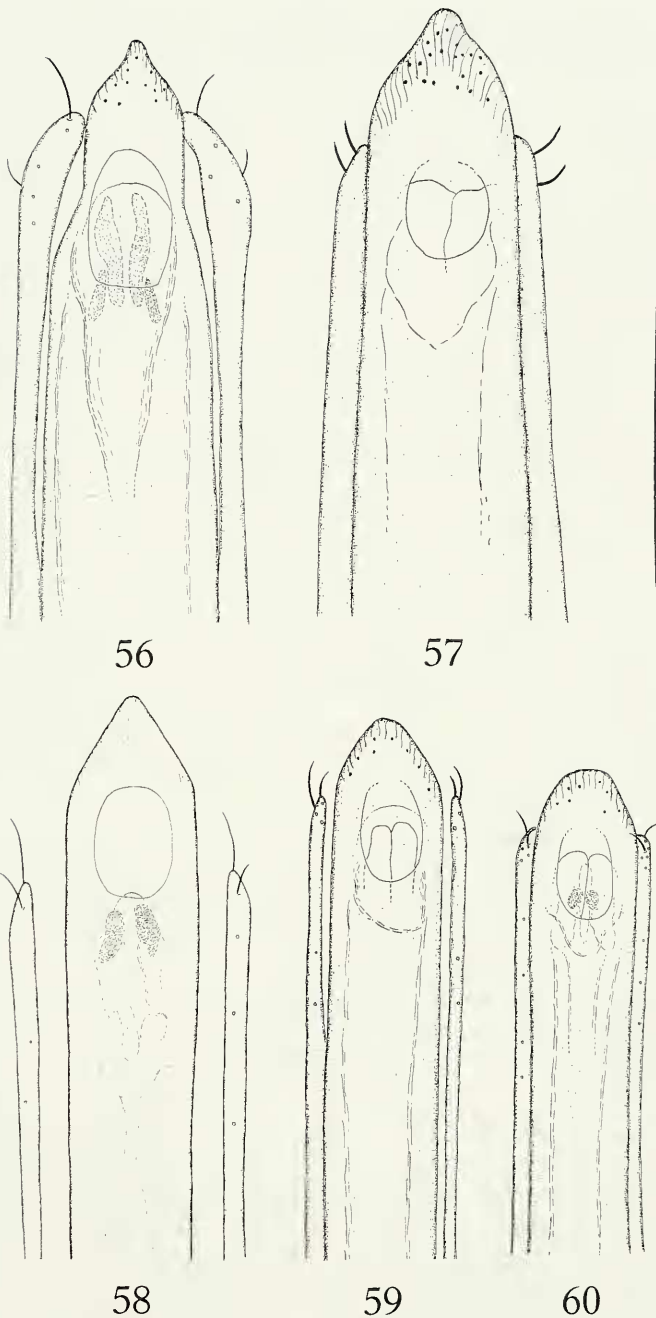
Figs 8, 16, 21, 28, 29, 35, 36, 44, 52, 60, 66

Type series. Holotype: ♂, Geumsubong, Mt. Gyeryongsan, Chungnam Prov., 23. vi. 2000, H. Hoshina & M. Maruyama leg. by the beating. (CNUIC). Paratypes: 4 ♂, same data as holotype (2 ♂ preserved in the collection of a senior author); 1 ♂, 1 ♀, Sangwonsa, Mt. Odaesan, Jinbu-myeon, Pyeongchang-gun, Gangwon Prov., 4. vi-22. vi. 2001, K.-J. Ahn *et al.* leg. (FIT); 1 ♂, Sangwonsa, Mt. Odaesan, Jinbu-myeon, Pyeongchang-gun, Gangwon Prov., 16. viii.-15. ix. 2001, S.-J. Park & C.-W. Shin leg. (FIT); 1 ♂, Mt. Sambangsan, Pyeongchang-eup, Pyeongchang-gun, Gangwon Prov., 13. vii. 2001, S.-J. Park & C.-W. Shin leg. (by the beating).

Distribution. Korea.

Description. Measurement of holotype: Body length 2.6 mm. Pronotum: length 0.84 mm, width 1.4 mm, height 0.84 mm. Elytra: length 1.4 mm, width 1.4 mm, height 1.0 mm.

Coloration. Head and pronotum brown or reddish brown; elytra dark brown; mesosternum brown; metasternum and venter dark brown; fore and mid coxae brown.



FIGS 56-60

Aedeagi, ventral view. 56, *Agathidium (Neocele) leesunshini* sp. n.; 57, *A. (N.) cribratum* Portevin; 58, *A. (N.) odaesanense* sp. n.; 59, *A. (N.) curticorne* Hlissnikovsky; 60, *A. (N.) choi* sp. n.. Scale: 0.5 mm for Figs 56-60.

fore and mid trochanters brown or reddish brown; fore and mid femora brown; other parts of legs reddish brown; antennomere 1 brown, 2-8 light brown, antennomeres 9-10 and basal two-fifths of 11 dark brown, apical three-fifths of 11 a little lighter in color than the basal part.

Body about 1.8 times as long as wide (Fig. 8), convex in general (Fig. 16).

Head widest at eyes (Figs 28 & 29), about 1.5 times as wide as long, punctate minutely (Fig. 16), not microreticulate; length and width of head about 0.71 times as long as and about 0.65 times as wide as those of pronotum, respectively (Fig. 8); eyes oval, located at about apical one-fourth of lateral margins; clypeal line shallow; male left mandible larger than right one (Figs 28 & 29), and sharply or feebly curved apically in lateral view (Figs 35 & 36); both mandibles almost of the same size in female; antennomeres 1-5 and 11 longer than wide; the others wider than long (Fig. 44); antennomere 3 segment about 1.2 times as long as 2, and shorter than 4 plus 5; length and width of antennomere 9 about 1.8 times as long as and about 1.5 times as wide as those of 8, respectively; antennomere 9 narrower than 10; antennomere 11 robust.

Pronotum widest at about apical two-fifths of lateral margins, about 1.7 times as wide as long, punctate minutely (Fig. 16), not microreticulate; length and width of pronotum about 0.58 times as long as and almost as wide as those of elytra, respectively (Fig. 8).

Elytra widest at about basal from one-third to two fifths of lateral margins, almost as wide as long (Fig. 8), not microreticulate; punctures of elytra clearly denser than those of head and pronotum (Fig. 16); sutural stria shallow, present at about apical one-third of elytra.

Mesosternum with a complete lateral line and a distinct median carina; metasternum without femoral lines.

Hind wings normal.

Tarsal formula 5-5-4 in male, 4-4-4 in female.

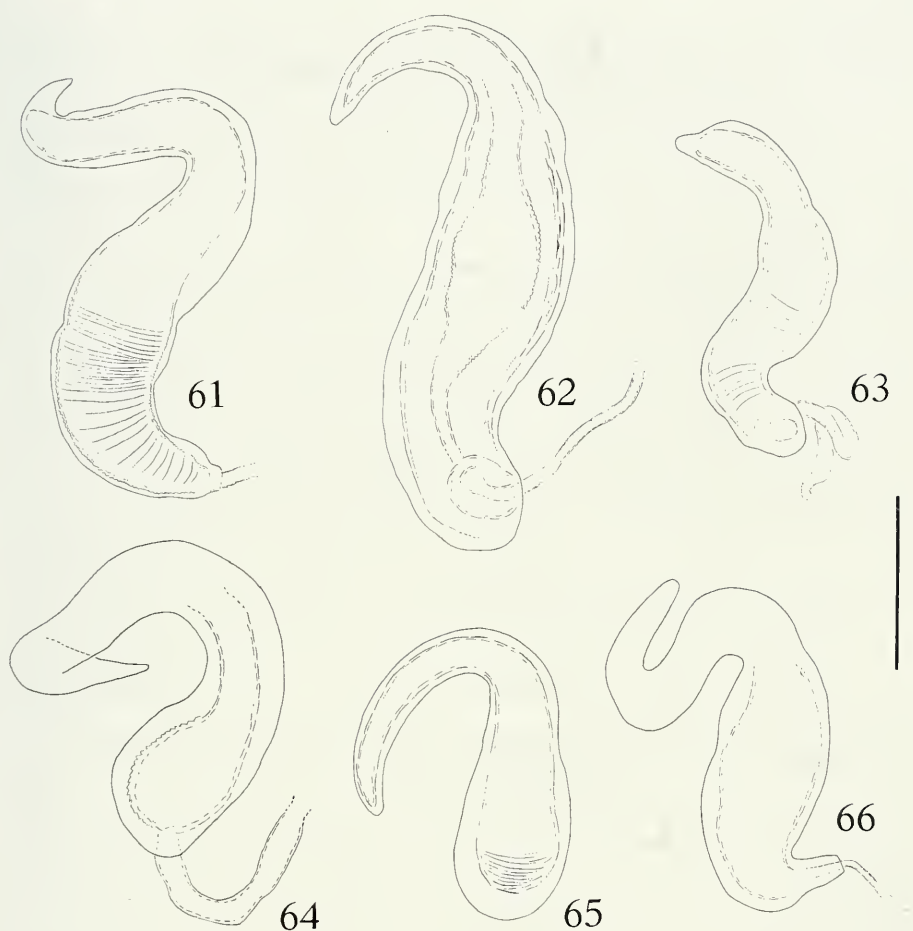
Male. Aedeagus (Figs 52 & 60) slender in general; the median lobe curved simply and weakly in lateral view, almost straight at apical margins in ventral view; parameres slender, shorter than the median lobe, curved in an arc, round apically in lateral view, straight at sides in ventral view.

Female. Spermatheca curved sharply at two points in general (Fig. 66).

Body length 2.5-2.7 mm.

Remarks. *Agathidium* (*Neocele*) *choi* sp. n. is similar to *A. (N.) aeneum* Angelini et De Marzo, 1990 in appearance, but is distinguished by a pronotum not microreticulate, in comparison with *A. (N.) aeneum* which has a pronotum clearly microreticulate. This new species is also similar to *A. (N.) confusum* Brisout, 1863, but the median lobe of the aedeagus is curved simply and weakly in lateral view (Fig. 52). In contrast, *A. (N.) confusum* has the median lobe which is relatively sharply curved. Moreover, this new species is similar to in appearance to *A. (N.) curticorne* Hlislinsky (see a key for the differences between these two species).

Etymology. The specific name is dedicated to Korean Coleopterogist, Dr. Young Bok Cho.



FIGS 61-66

Spermathecae. 61, *Agathidium (Cyphocele) muryeongii* sp. n.; 62, *A. (C.) subcostatum* Portevin; 63, *A. (C.) bockshini* sp. n.; 64, *A. (Neocele) cribratum* Portevin; 65, *A. (N.) odaesanense* sp. n.; 66, *A. (N.) choi* sp. n.. Scale: 0.1 mm for Figs 61-66.

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